Space Weather Forecast

Issued on Saturday, 29 October 2022 at 01:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of G1/Minor geomagnetic storms throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity over the past 24 hours has been Low, with several very low level common class flares. There are six numbered sunspot regions on the solar disc, with the most active, and also most development seen in a new bipolar region the northeast. Further growth is likely. The largest region is a further sunspot group in the northeast, close to centre disc. This has one large spot that comprises most the region, but with a small further spot having developed to the north of the larger one resulting in a bipolar structure. There are two other sunspot regions of note, one situated in the northeast between the two previously mentioned, and a further one in the far southwest near approaching the limb. These have seen only limited development and currently less likely to be sources of notable flares. There are also a further two small and simple unipolar regions. No Earth-directed coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind has been indicative of Earth moving into the fast winds from a coronal hole. Initially slightly elevated winds with speeds of around 420-460 km/s eased to background before erratically rising from 28/1010 UTC to peak at 28/1545 UTC at around 550 km/s. Elevated winds then generally persisted. The total magnetic field strength was initially weak, before rising to be moderate from 28/1404 UTC. The north-south component varied weakly at first, but became moderately negative (southward) by 28/1419 UTC. This then erratically rotated to moderate positive (northward) values by 28/2155 UTC and then back to negative values. Geomagnetic activity was Quiet to Active (Kp 2-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly Low, but with a daily slight chance of isolated Moderate flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Earth is currently in a coronal hole fast wind enhancement. Elevated winds are likely for much of the period, with further occasional enhancements possible. These most likely either day 1 (29th) or perhaps day 3 (31st). Quiet to Unsettled geomagnetic activity expected with Active intervals. There is a chance of G1/Minor storms, most likely early day 1 (29th), but possible throughout.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	60	20	30	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.